

WHAT IS CLAIMED:

1. A pharmaceutical composition for augmenting activated immune cells, comprising a compound that activates one or more cytokine receptors and a compound that activates one or more co-stimulatory molecules expressed on activated immune cells.
- 5 2. The pharmaceutical composition of Claim 1 wherein the composition is for the treatment, prevention or inhibition of cancer.
- 10 3. The pharmaceutical composition of Claim 1 wherein the composition is for the treatment, prevention or inhibition of an infectious disease.
4. The pharmaceutical composition of Claim 2 wherein at least one of the cytokine receptors is the IL-12 receptor.
- 15 5. The pharmaceutical composition of Claim 3 wherein at least one of the cytokine receptors is the IL-12 receptor.
6. The pharmaceutical composition of Claim 2 wherein at least one of the co-stimulatory molecules is 4-1BB.
- 20 7. The pharmaceutical composition of Claim 3 wherein at least one of the co-stimulatory molecules is 4-1BB.
- 25 8. The pharmaceutical composition of Claim 4 wherein at least one of the co-stimulatory molecules is 4-1BB.
9. The pharmaceutical composition of Claim 5 wherein at least one of the co-stimulatory molecules is 4-1BB.
- 30 10. The pharmaceutical composition of Claim 6, 7, 8 or 9 wherein the compound that activates 4-1BB is selected from the group consisting of 4-1BB ligand, nucleic acid molecules encoding 4-1BB ligand, anti-4-1BB antibodies, and nucleic acid molecules encoding molecules anti-4-1BB antibodies.
- 35 11. The pharmaceutical composition of Claim 4, 5, 8 or 9 wherein the compound that activates the IL-12 receptor is selected from the group consisting of IL-12, nucleic

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molecules encoding IL-12, anti-IL-12 receptor antibodies, and nucleic acid molecules encoding anti-IL-12 receptor antibodies.

12. The pharmaceutical composition of Claim 1, 2, 3, 6 or 7 wherein the compound that activates one or more cytokine receptors is selected from the group consisting of IL-12, IL-15, IL-18, anti-IL-12 receptor antibodies, anti-IL-15 receptor antibodies, anti-IL-18 receptor antibodies, nucleic acid molecules encoding IL-12, nucleic acid molecules encoding IL-15, nucleic acid molecules encoding IL-18, nucleic acid molecules encoding anti-IL-12 receptor antibodies, nucleic acid molecules encoding anti-IL-15 receptor antibodies, and nucleic acid molecules encoding anti-IL-18 receptor antibodies.

13. A method of treating or preventing cancer in a subject comprising administering to the subject in which such treatment or prevention is desired a therapeutically effective amount of a compound that activates one or more cytokine receptors and a compound that activates one or more co-stimulatory molecules expressed on activated immune cells.

14. A method of treating or preventing an infectious disease in a subject comprising administering to the subject in which such treatment or prevention is desired a therapeutically effective amount of a compound that activates one or more cytokine receptors and a compound that activates one or more co-stimulatory molecules expressed on activated immune cells.

15. The method of Claim 13 wherein in at least one of the cytokine receptors is the IL-12 receptor.

16. The method of Claim 14 wherein in at least one of the cytokine receptors is the IL-12 receptor.

17. The method of Claim 13 wherein at least one of the co-stimulatory molecules is 4-1BB.

18. The method of Claim 14 wherein at least one of the co-stimulatory molecules is 4-1BB.

19. The method of Claim 15 wherein at least one of the co-stimulatory molecules is 4-1BB.

20. The method of Claim 16 wherein at least one of the co-stimulatory molecules is 4-1BB.

21. The method of Claim 15, 16, 19 or 20 wherein the compound that activates the IL-12 receptor is selected from the group consisting of IL-12, nucleic acid molecules encoding IL-12, anti-IL-12 receptor antibodies, and nucleic acid molecules encoding anti-IL-12 receptor antibodies.

22. The method of Claim 17, 18, 19 or 20 wherein the compound that activates 4-1BB is selected from the group consisting of 4-1BB ligand, nucleic acid molecules encoding 4-1BB ligand, anti-4-1BB antibodies, and nucleic acid molecules encoding anti-4-1BB antibodies.

23. The method according to Claim 16, 17, 19 or 20 wherein the compound that activates the IL-12 receptor is expressed by a recombinant adenovirus.

24. The method according to Claim 17, 18, 19 or 20 wherein the compound that activates 4-1BB is expressed by a recombinant adenovirus.

25. The method according to Claim 13, 14, 15, 16, 17, 18, 19 or 20 in which the subject is human.

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